
Staff 1-36: For any transmission or sub-transmission poles broken in the above question, please indicate when the pole was last inspected prior to the December 2008 storm and what, if any, maintenance was performed on it.

Response:

All of Unitil's subtransmission poles are visually inspected annually. Given our annual program was completed prior to the 2008 Ice Storm, each pole would have received a visual inspection in 2008.

NHPUC December 2008 Ice Storm Review
Unitil Energy Systems, Inc.- Set 1

Witness: Raymond A. Letourneau, Jr.
February 27, 2009

Staff 1-37: Please describe the inter-company communications systems used in field restoration efforts to communicate from field command centers to workers in the field (*e.g.*, voice radio systems, cell phones, etc.). Please differentiate different voice radio systems used.

Response:

The primary communication system used during field restoration efforts is a two-way voice radio system. The Capital and Seacoast Operating Centers have two different radio frequencies; however each vehicle is equipped with a radio capable of utilizing either frequency.

A secondary communication system is cellular phones and/or landline phone systems. These systems are used when longer conversations are required with field personnel or if the primary radio system had priority communication (i.e. switching orders) or an increase in radio traffic.

Staff 1-38: Please describe the frequency and types of communications methods most used between the field command centers to division/corporated command centers (*i.e*, telephone conversations, emails, computerized reports, etc.).

Response:

E-mail and telephone communications were used on a regular and frequent basis during the 2008 Ice Storm between the corporate office, the EOCs, and the Call Center.

In addition, each EOC was responsible for maintaining Unitil's Outage Reporting System, which details outage information by town. This information may be accessed through the company's intranet.

Staff 1-39: Please describe how often conference calls were scheduled within companies (*e.g.*, 3 times daily: at 6am, 2 pm, 8 pm; on an as-needed basis; etc.) and the personnel involved in scheduled calls.

Response:

Conference calls were scheduled approximately 2-3 times per day as designated by the Director of Electric Operations. The most utilized times were 0700, 1600, and 2100 hours. The following personnel were required participants:

- Director of Electric Operations
- EOC Managers
- Logistics coordinators
- Manager of Procurement and Inventory

NHPUC December 2008 Ice Storm Review
Unitil Energy Systems, Inc.- Set 1

Witness: Kevin Sprague
February 27, 2009

Staff 1-40: For those companies using outage management systems please describe any such systems employed in restoration efforts and the perceived benefits of those systems.

Response:

Unitil Energy Systems does not currently have an Outage Management System (OMS). However, Unitil has been evaluating implementation of an OMS since 2006 and intends to implement an OMS by the end of 2009. Unitil has been upgrading related technology systems forming the foundation for an OMS, including GIS, in anticipation of this implementation. Unitil has various systems in place that will provide valuable data to an OMS (e.g., GIS, IVR, AMI, SCADA).

Unitil believes that an OMS will prove to be most valuable during large scale outage events. From an informational perspective, an OMS will provide real time data in an effective manner so that Unitil can better communicate the restoration efforts to customers, emergency responders, towns, cities, and State agencies. An OMS will provide up to the minute data on the following:

1. Active outages and causes
2. Circuits or areas affected by the outage
3. Outages by town
4. Customers who are affected by the outage
5. Customers who have called
6. Length of each active outage
7. Crew assignment
8. Outage status
9. Expected restoration

Operational benefits associated with an OMS include:

1. Efficient management of outage data during an outage event
2. Quickly predicts the most likely open point from incoming data sources
3. Quickly recognizes multiple system outages.
4. Dynamically change outage situations in real-time.
5. Dynamically process incremental restorations.
6. Minimize restoration time through more efficient crew management
7. Improve operations efficiency

Staff 1-41: Please describe how many restoration efforts have been completed using the outage management system referenced in Request Staff 1-40, since inception or within the last 3 years, whichever time period is shorter.

Response:

Unitil Energy Systems does not currently have an outage management system. Please see the response to Staff 1-40.

Staff 1-42: Please describe community and public relations efforts employed during the storm, including the number of people employed and the number of communities assigned to local governments.

Response:

Unitil's plans for response to a major storm provides for initiation of active media communications and maintenance of communications with municipal officials (including civil defense directors), state legislative representatives, the Commission and NHOEM. Communications with the public is necessary to provide reliable information about an impending storm, the means by which customers can remain safe, the damages incurred to the electric system and the progress made to restore power. Utilities must also coordinate closely throughout a restoration effort with local public safety officials in order to restore power safely and expediently. Management from each of Unitil's three divisions have met with local public safety officials to address emergency planning. In general, public safety officials have regular contact with Unitil throughout the year regarding utility work on public roads.

Prior to and during the storm, Unitil issued PSAs on a regular basis to provide ongoing information on the storm and restoration efforts to all constituencies. The first PSA was distributed to company employees, media and emergency and elected officials in Massachusetts and New Hampshire, and posted on the Unitil website, on December 11 at 1:15 p.m. This PSA served three purposes: (1) to provide toll-free numbers for Unitil, (2) to advise customers of supplies that would help them withstand a power outage, and (3) to provide an update on anticipated weather conditions. Subsequent PSAs were issued one to five times per day and contained information on the number of customers still without power. Many PSAs also contained some indication of expected restoration times. All PSAs were posted on Unitil's web site in addition to being distributed to the media and public officials. The contact list for PSA distribution was updated and expanded throughout the restoration process: Town Halls and administrative offices were specifically added to this list during the storm at the request of local officials.

In addition, operations personnel maintained direct contact with local emergency and public safety officials. Public safety officials are provided with a dedicated

phone line that rings directly into the local Unitil EOC ("storm room"). [1] Emergency officials are able to reach operations personnel directly to report public safety priorities or emergencies involving downed wires, etc. As restoration efforts lengthened beyond the first few days and community concerns escalated, members of Unitil management met with the Chiefs of Police of the thirteen seacoast communities served by Unitil to discuss opportunities to improve communication. Unitil was also concerned with the safety and welfare of line crews and field workers and sought assistance from local police to ensure their safety. This meeting took place on December 18, 2008.

As a result of the meeting and based on feedback from participants, Unitil implemented twice daily conference calls beginning December 19, 2008. Unitil provided a conference dial in number that allowed emergency officials from each of the seacoast communities to dial in for a twice daily briefing. The morning briefing was intended to update local officials on the plan for the day, including restoration objectives and locations where crews were expected to be working. The end of day briefing was initiated to review the day's progress and discuss priorities for the next day. The briefings also provided an opportunity for emergency officials to relay other critical information back to Unitil. This process worked well for the remainder of the ice storm and has been permanently implemented at each of Unitil's distribution operations centers for major storm events.

The Company attempted to be accessible to incoming calls and to coordinate with all public and state officials throughout the restoration process. During the course of the restoration effort, Unitil personnel received hundreds of calls and messages from public officials and from the media, and made significant efforts to respond to every one as quickly as possible and with the best information available. Given the overwhelming impact of the storm and the challenges of the restoration efforts, there were some delays in responding to calls and requests for information.

Through the storm restoration effort system-wide, Unitil had two staff devoted to media communications and web updates and up to eight staff from business services who were re-deployed from normal duties to assist operations and communications personnel with public communications. Various operations personnel also assisted with public communications along with other storm

[1] Regrettably, in Seacoast, this phone line was compromised during the restoration phase after it was made available to customers. An alternative phone line was provided.

response duties. Due to the scope of the emergency and the large number of communities with significant outages, Unitil kept the individuals involved in communications in rotation to address problem areas as they arose rather than assigning individuals to specific communities.

Notwithstanding Unitil's continuing and sustained efforts to meet the public information needs during the restoration process, it became apparent that those efforts were not able to meet those needs in the face of a storm restoration of this magnitude. Unitil has identified a number of challenges:

- Communication efforts were compromised by the difficulty of providing accurate estimated restoration times. Once the initial damage assessment had been done, the early focus of the limited resources available to Unitil was on power restoration. However, as the restoration proceeded and repairs proved to be more extensive and time-consuming than originally expected, estimated restoration times were increased. This led to customer confusion, anxiety and a loss of confidence in the information being provided by Unitil.

- Rumor control proved to be a significant challenge for Unitil during the restoration process. Every effort was made to immediately dispel incorrect or misleading information, whether it came to us from customers, public officials or the media, but the problem persisted and compounded the difficulties of communication.

- Delays in being able to assign personnel to serve as contact points for communication with public officials were not helpful. In addition, the rotation of several personnel in the liaison role throughout the restoration period precluded more productive relationships from being formed.

- The ability of the Call Center to meet the communication needs of customers is critical to maintaining an adequate flow of information during an extended restoration period. As the Call Center became unable to fully meet that need, the pressures on local public officials rose significantly.

- As the restoration period lengthened, customers and public officials increasingly sought very specific information about the status of the restoration effort, the location of crews and the length of time it

would take to restore specific streets or addresses. This level of specificity was generally not available.

These factors help explain why many of those who have commented publicly about Unitil's response to the 2008 Ice Storm identified communications as a significant issue. This is an area of focus in the Company's Self-Assessment process. Unitil believes that improvements should be made in the process of communicating with the general public, the elected and other public officials as well as the use of media to do so. The information that is relied upon in these public communications should also be improved. In at least once respect, the establishment of an Emergency Information Center, changes have already been implemented during the preparations for two storms that had a potential impact on Unitil's operating divisions. Current recommendations in this area include the following:

- Clarify communications roles in ERP;

- Evaluate and revise protocol for outreach to public officials and members of the media as the storm approaches and throughout the restoration period (a revised protocol was employed during the January 2009 storm events);

- Revise process to ensure that all public-facing personnel, including public communications staff, the call center, operations personnel, and personnel embedded in town EOCs have a common source of information and communicate consistent messages throughout the restoration period;

- Clarify roles and responsibilities of personnel embedded in town EOCs and ensure protocols provide them with the information and tools necessary to perform these functions;

- Employ both traditional media (*e.g.*, newspaper placements) and less traditional forms of communication to reach more customers;

- Provide more details on the extent of the damage and specific information about the process employed by Unitil to restore power; and

- Investigate technology and systems that will provide more accurate information on customers that remain without power and designate

appropriate resources to implementing these (this technology review is underway).

Staff 1-43: Please describe how "downed wire" notifications originating from emergency officials (fire/police/public work departments) are assigned as restoration priorities.

Response:

For downed wire notifications that are reported as one of the following: sparking or arcing, or preventing emergency personnel from accessing a building, or deemed an immediate hazard by emergency response officials for other reasons (e.g. the opening of a school), the call is immediately assigned or assigned to the next available crew depending upon the specific circumstances reported.

If the downed wire call is unable to be categorized as "requiring immediate dispatch" as defined above, the company will assign resources to perform a field investigation to determine ownership of the facilities (electric, telephone, or cable). This effort was completed by assigning these calls to "assessment personnel" as listed in Staff 1-27, some of whom are equipped to cut and clear the downed wire. Downed wires owned by others are reported to the proper entities. If a non-electric downed wire prevented Unitil from performing emergency work, the wire was removed and the entity notified.

This 2008 Ice Storm generated a significant volume of "downed wire" calls from emergency officials. Although assessment personnel and line crews responded as quickly as possible to those defined as "requiring immediate dispatch," the quantity of non-live wire down reports was so large that it was not possible to respond to each one until they were repaired in the normal restoration process.

Staff 1-44: Please describe how "downed wire" notifications originating from customers are assigned as restoration priorities, if different from above.

Response:

The majority of calls from emergency officials are received on dedicated and unpublished telephone numbers within Unitil's EOCs. As a result, restoration personnel are able to have one-on-one communication allowing them to perform detailed assessment. Emergency officials are better trained at recognizing hazards, and the information received is more detailed. Therefore wire down calls from emergency officials allows Unitil to improve categorization for prioritization purposes according to the process described in Staff 1-43.

"Downed wire" notifications from customers are received at our call center, either through the Interactive Voice Response System (IVR) or through direct contact with a customer service representative (CSR). Both of these calls result in a trouble ticket that prints at the respective EOC indicating a "wire down." Because these calls often lack specific detail as described above, it is difficult to perform detailed categorization until assigned to field personnel as described in Staff 1-43.

This 2008 Ice Storm generated a significant volume of "downed wire" calls from customers. The quantity of wire down reports was so large that it was not possible to respond to each one until they were repaired in the normal restoration process.

Staff 1-45: Please detail the number of employee safety incidents incurred during restoration with breakdown by in-house, contracting, affiliate or mutual aid companies. Note any incidents that involve electric facilities.

Response:

No safety incidents were incurred by any Unitil employee, Unitil contractor, or Unitil mutual aid company during the entire restoration effort.

Staff 1-46: Please detail the number of vehicular incidents incurred during restoration with break-downs by in-house, contracting, affiliate or mutual aid company employees.

Response:

No vehicular incidents were incurred involving any Unitil employee, Unitil contractor, or Unitil mutual aid company during the entire restoration effort.

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Staff 1-48: Please identify post-storm activities completed and those still to be completed, with a schedule for completion times (*e.g.*, for ramp down, internal critiques of lessons learned, industry-shared results of lessons learned, debris removal, cleanup efforts, post-event related tree trimming, replacement of any temporary repairs put in place to expedite restoration).

Response:

Post storm activities included the following:

Self Assessment/Lessons Learned – an internal review of lessons learned was immediately initiated after the storm and is currently still underway and will be completed in a few weeks. This internal review is focusing on all areas within the Company that were directly or indirectly involved with this event. Many meetings have already taken place with management personnel and with employees at "ground level" during the storm in order to obtain their input on future improvements and those areas that "went well" during the storm. Preliminary findings on lessons learned and recommendations for implementation have been discussed internally. Some initiatives have already been implemented.

Distribution circuit patrols – line crews and supervisory personnel were assigned distribution circuits to patrol. The purpose of these patrols was to have them denote any line or tree related issues needing attention as a result of the storm or to make immediate repairs or remove any trees/tree limbs that may result in an imminent service interruption. Permanent repairs and tree related concerns are currently underway and are expected to be completed by the end of March.

Sub-transmission helicopter patrols – a helicopter "fly over" of all Unitil's sub-transmission system took place in order to identify immediate or long term issues relative to line construction or tree related matters needing attention. Unitil has completed all immediate concerns that were reported as a result of this patrol and the remaining issues will be address when access to the right of ways has improved (less snow).

Clean up efforts and Temporary repairs – the most notable and important clean up related work and temporary repair work has been completed. Efforts

included replacing broken poles, picking up wire and other hardware from the ground, removing pieces of pole from the ground or remaining in the ground, the removal of transformers placed temporarily on the ground, and service related work (pulling up and re-attaching services). Some of this clean up work will continue through the end of March but these outstanding issues do not present any threat or potential service interruption. Much of this clean up work needs to wait for all of the snow to melt in order to access the locations or be able to locate material/wire buried in the snow.

Consolidation of Materials – a thorough review of stock levels took place immediately following the storm in order to identify the quantities of materials used during the storm.

Contractor and Mutual Aid Invoice Review – a thorough review of all contractor and mutual aid invoices has taken to ensure accuracy of costs.

Fairpoint information sharing – shortly after the storm concluded both Unitil and Fairpoint shared information regarding pole replacements that took place during the storm. It was agreed upon during the storm that maintenance areas did not need to be taken into consideration for the purpose of restoring service or for public safety purposes.

Communication with Customers – During and after the storm, Unitil communicated with customers that were in need of hiring an electrician for the purpose of restoring service or for safety concerns. Although most issues were resolved as the restoration was completed, Unitil has continued to follow up to ensure the customers was aware of their responsibilities. As a result of the storm and the inability to obtain meter readings from all accounts during the month of December, Unitil issued approximately 9,000 estimated bills in New Hampshire and these generated a significant number of calls to the Call Center. Customers were reassured that the consumption would be reconciled to actual in the next billing period as actual meter readings were recorded. While this resolved most concerns, the Company did provide some additional flexibility relative to timing of customer payments in order to help address customer frustration.

Public Communications – three notable post storm communication enhancements have been completed and since utilized as follows:

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1) Emergency Information Center (EIC) – an EIC has been established within Unitil to provide direct incoming and outgoing communication with public officials in communities affected by a major storm event. Access is provided by dedicated toll-free phone lines. The EIC was activated for the first time for the January 7-8 ice storm and functioned well.
2) Increased Phone and IVR Capacity - Since the storm, Unitil has increased incoming phone lines from 72 to 120 with an additional 24 more planned for July. These additions were planned as part of the integration process for Northern Utilities but will obviously significantly increase the overall capacity of our systems. In addition, the Company has set-up and tested a procedure to enable any phone extension in Unitil to handle customer service calls in an emergency.
3) Conference calls with local fire and police officials – a new communication process was formally put into place for the January 7-8 storm for daily conference calls with local fire and police officials.

NHPUC December 2008 Ice Storm Review
Unitil Energy Systems, Inc.- Set 1

Witness: Raymond A. Letourneau, Jr.
February 27, 2009

Staff 1-49: Please provide comparisons of how the December 2008 ice storm compared to the second and third worst outages in your company's history. Include the event name, date, peak number of crews, restoration costs and any breakdowns of those costs, duration of restoration by hours, quantity of customers interrupted, quantity of company customers at the time, percent of customers interrupted, and number of communities affected. This question assumes the December 2008 ice storm is the worst recorded outage experienced. For purposes of determining worst outages assume the deciding factor is the length of time required to restore all customers.

Response:

The table below compares the three worst outages in UES history:

December 2008 Ice Storm – 12/11/2008

Number of Customers Interrupted	Number of Customers Served	Percent of Customers Interrupted	Restoration Duration (hrs)	Customer-Hours of Interruption	Peak # of Restoration Crews	Total Restoration Cost
40,816	74,115	55%	252	2,872,366	67	Note 1

Hurricane Bob – 8/19/1991

Number of Customers Interrupted	Number of Customers Served	Percent of Customers Interrupted	Restoration Duration (hrs)	Customer-Hours of Interruption	Peak # of Restoration Crews	Total Restoration Cost
26,605	58,496	45%	50	239,352	Note 2	Note 3

Snow Storm Bernice – 12/7/1996

Number of Customers Interrupted	Number of Customers Served	Percent of Customers Interrupted	Restoration Duration (hrs)	Customer-Hours of Interruption	Peak # of Restoration Crews	Total Restoration Cost
36,044	60,831	59%	33	183,596	Note 2	Note 3

NHPUC December 2008 Ice Storm Review
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Witness: Raymond A. Letourneau, Jr.
February 27, 2009

Note 1: The total restoration cost for this storm event is to be determined because not all final invoices have been received yet.

Note 2: Unable to obtain accurate crew complement totals for this storm event.

Note 3: Total restoration cost is not available for this storm event because charges were captured within a blanket emergency restoration account.

Staff 1-50: Please provide any studies the company has undertaken that consider advantages, disadvantages and costs of burying overhead lines with those for underground facilities. Include only those facilities for voltages less than 34.5 kV.

Response:

Unitil Energy Systems has not completed nor has it considered studying the advantages, disadvantages and costs associated with replacing overhead distribution lines with underground distribution lines.